The Role of Social Media in Public Health Marketing

By

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Abstract

Much has been written about the surging popularity of social media and its potential to revolutionize communications with and among healthcare providers, patients, family members and the interested public. However, little research has been done on its appropriate and effective use within the context of public health marketing campaigns. In this paper, I will review the current academic literature, with a focus on the "Four P" marketing mix, to identify ways in which social media tools may be effectively employed in public health marketing programs to facilitate individual and societal behavior change. The findings will be used to develop recommendations for the use of social media within public health marketing programs.

The Role of Social Media in Public Health Marketing

Social marketing programs have long incorporated the Internet into their promotional strategies, encouraging target audiences to "click" "download" and "learn more." However, the advent of Web 2.0 has opened up avenues for audience engagement and information sharing that researchers and practitioners have only recently begun to explore.

The Pew Research Center's Internet & American Life Project reports that, of the 74% of American adults who use the Internet, 80% have looked online for information related to a specific disease or treatment, 34% have read someone's blog or comments about health or medical issues, 25% have watched a health or medical video online, 24% have consulted online reviews of drugs or medical treatments, and 18% have sought out others online with similar health concerns (Fox, 2011). Furthermore, of the 62% of adult American Internet users who participate in online social networking sites, 23% have used them to read friends' personal health experiences and 15% have found health information on the sites (Fox, 2011).

While research into the effective use of social media in social marketing is limited, much of it has focused on its use as a tool for the fourth social marketing "P" of promotion. In this paper, I will argue that social media also holds potential as a tool for collaboratively developing social marketing products and services through "open-source marketing"; exploring, setting and adjusting its price (monetary or otherwise); and determining the physical or virtual place in which a product or service will be offered or behavior performed.

Definition of social marketing

In 1971, Kotler and Zaltman defined social marketing as "the design, implementation,

and control of programs calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution, and marketing research" (Kotler & Zaltman, 1971). In 1988, Lefebvre and Flora expanded upon the concept, suggesting that social marketing is also defined by a consumer orientation, the concept of exchange, audience analysis and segmentation, formative research, channel analysis, and the use of the "four P" marketing mix – product, price, place and promotion. It is also defined, they argue, by process tracking, and a management process that facilitates problem analysis, planning, implementation, feedback and control functions (Lefebvre & Flora, 1988). In 1995, Andreasen defined social marketing as "the application of commercial marketing technologies to the analysis, planning, execution, and evaluation of programs designed to influence the voluntary behavior of target audiences in order to improve their personal welfare and that of their society" (Andreasen, 1995). Social marketing programs may seek to change individual behaviors, their social and physical determinants, risk perception, social norms, or the skills required to carry out a specific behavior or access a product or service (Hughes, 2008).

Definition of social media

Kaplan and Haenlein define social media as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content" (Kaplan & Andreas, 2010). In a public health context, social media is "a communications channel that can be integrated into a larger social marketing campaign, and includes all of the various activities that combine technology and social interaction between people" (Hughes, 2010).

Examples of social media applications include collaborative projects, such as wikis and social bookmarking services; blogs; photo, video and presentation content communities, such as *Flickr, YouTube* and *Slideshare*; social networking sites, including *Facebook* and *MySpace*; syndication services, like RSS feeds; virtual game worlds, like *World of Warcraft*; and virtual social worlds, such as *Second Life* (Kaplan & Andreas, 2010). It can also include Internet forums, message boards, texting via mobile devices and podcasts (Hughes, 2008).

While social media are often discussed in terms of specific online technologies and mobile applications, health marketing researchers emphasize that social media should be conceptualized and leveraged as tools that facilitate online interaction among individuals and groups (Hughes, 2010). "What these new technologies make plain," writes Lefebvre, "is that it is, indeed, a networked world – one in which we do not design 'messages' for priority audiences, stakeholders, partners, donors, and others groups, but a world in which they talk back to us, and just as importantly, with each other" (Lefebvre, 2007).

Social media as an extension of a product or service

Social marketing products can be tangible items, such as condoms or oral rehydration therapy packets. However, they can also include intangibles, such as ideas, social causes and behavior change, such as recycling, healthy eating or breastfeeding (Lefebvre, 1988).

Mobile phones and smart phones are steadily being utilized and studied as technologies that enhance and support social marketing products. According to Lefebvre, "mobile phones are rapidly becoming adjuncts, or features of behavior change products and services…[and are commonly] combined with Web sites to support behavioral monitoring, social support networks and feedback" (Lefebvre, 2009). As cell phones are currently more prevalent than smartphones

across socioeconomic strata, Fogg recommends that mobile health programs be built for cell phones using text. "Virtually everyone has a cell phone, and everyone can text. It's here and now, if you're going to do an intervention that reaches the masses" (Sarasohn-Kahn, 2010).

As one example, Hurling *et al*'s evaluation of an exercise program incorporating a variety of Internet and mobile tools found significant increases among the intervention vs. control group in physical activity, perceived control, intention or expectation to exercise and loss of body fat (Hurling, Catt, Boni, Fairley, et al; 2007). The authors reported that "all parts of the [Web and mobile] system were used by at least one-third of participants" and that "each individual [may require] an idiosyncratic selection of support tools to achieve behavior change such that no one tool can be universally considered the most influential."

Mobile phones have also been shown to be effective tools in the delivery of smoking cessation services. In a meta-analysis of four such text-message-based programs, Whittaker and colleagues found a significant increase in short-term self-reported quitting compared to control groups. When researchers combined data from Internet and mobile phone programs, they found statistically significant increases in both short- and long-term self-reported smoking cessation (Whittaker, 2009). More studies on the use and effectiveness of mobile technology in health marketing are expected and will add to the evidence base.

In February 2010, the National Healthy Mothers Healthy Babies Coalition and its partners launched Text4Baby, a free text-message based information service that provides targeted health information to women from early pregnancy through the baby's first birthday, with educational messages corresponding to the mother's stage of pregnancy or the baby's age. With high cell phone ownership and texting behavior among women of childbearing age (Pew Internet & American Life Project, 2010), coalition partners identified text messaging as a unique

and valuable tool to help reduce infant mortality. Between the program's launch and May 2011, more than 155,000 women had enrolled, more than 6.7 million text messages had been sent and 96.5% of enrollees would recommend the program to a friend (Jordan, 2011). Program evaluation to demonstrate behavior change and clinical outcomes is ongoing.

While social media tools can be a part, or extension, of a social marketing product or service, they can also play a key role in their development and improvement (Lefebvre, 2007) by providing the target audience the opportunity to collaboratively create a product with program managers and other potential "customers" through a process called "open-source marketing" (Freeman, 2009).

Wikipedia describes the term "open source" as "practices in production and development that promote access to the end product's source materials" (Wikipedia). Pitt et al describe open source offerings as "products, services and ideas where the intellectual input of the inventors and producers is non-proprietary in nature… The intellectual contributions to [product] development and improvement are made freely and voluntarily, without expectation of payment"; customers and users are encouraged to improve and extend the original product (Pitt, 2007). In open-source marketing, product developers make the development process transparent in order to solicit and leverage the collective input of their customers and stakeholders. This results in an end product that is a collaboration between the producer and the users (Freeman, 2009). While this concept originated in the software industry, it has since been leveraged by companies such as MasterCard, Coca Cola, and the Australian brewery Brewtopia, among others (Pitt, 2007).

In their case study, Freeman and Chapman describe RJ Reynolds' 2007-2008 open-source marketing campaign, which used social media channels to engage smokers in the redesign of Camel and Camel Signature Blends cigarettes and cigarette packages. During the campaign,

advertising led consumers to the Camel website where they could post blog comments on their packaging and flavor preferences and vote on final packaging alternatives. Participants were mailed empty packages with the winning design. Consumers also posted online their own video reviews of the new flavors, on which others could comment. According to the authors, this campaign was particularly noteworthy as it exploited a loophole in tobacco industry advertising legislation, which prohibits tobacco advertising through most traditional media channels and offered the company a unique and valuable opportunity to promote their brands, build trust and strengthen relationships with current - and potentially future - smokers.

Freeman and Chapman concluded that social marketers must learn from and apply industry open-source marketing practices in order to build deeper engagement with target markets and facilitate two-way dialog about both health and lifestyle issues and about their branded product or service.

Branding is a key component in developing and marketing social marketing products and services. Stuart Agres defines a brand as "an asset of differentiating promises that links a product to its customers" (Rothschild, 2001). In his review of David A. Aakers' book, *Building Strong Brands*, Rothschild argues that social marketers need to create brands imbued with unique benefits and meanings, and to ensure that users feel that "by consuming these brands they will receive the benefits and meanings, as well as the self-image enhancement that they seek." However, he writes that social marketers "have not been concerned enough with developing brands or bonds; we have been more concerned with telling people how to behave and less concerned with building relationships" (Rothschild, 2001).

According to strategic marketing consultant and blogger James Cherkoff, the days when brand owners can send unidirectional messages to consumers without engaging them in lasting

relationships are over, and describes the future of, and eight principles behind, open-source marketing (Cherkoff):

1. Give consumers access. Allow them to interact with the brand-source (*i.e.* sponsoring organization or agency), invite them to be co-creators of branded projects; make it easy for them to get involved with a brand and affect its direction and values.

2. Put the brand source materials in the hands of the consumers, especially brand "fans", and allow members of the community to create and innovate.

3. Monitor rather than guard brand identity. Cherkoff writes that brand owners (*i.e.* sponsoring organizations) should supervise and monitor the brand identity rather than rigidly guard each of its components, thereby giving consumers the opportunity to interact with it and influence its character.

4. Listen intensely to consumers. Open-source communities are based upon ongoing dialogue. Therefore, open-source marketing requires that program managers listen closely to the "rumors and whispers that bring the new marketplace alive" (Cherkoff).

5. Speak with an authentic, human voice. Corporate public relations jargon should be eliminated from communications with audiences and replaced with more genuine, everyday language.

6. Never underestimate consumers' intelligence. Open-source marketers must understand, respect and value their customers' insights, and recognize that they may be more valuable than their own and those of their PR and advertising agencies. Ensure that customers have ample opportunity to provide substantial feedback, and use it to help grow marketed brands and services.

7. Organizations need to relinquish much of the control over their brands. "Brands are no longer proprietary and companies need to adapt to that reality. There's no point in calling in the lawyers to try and change things back. The world has moved on."

8. Marketers need to open and change minds within their departments and organizations. While most organizations are accustomed to the "one-to-many" communications model of television commercials and press releases, leadership is needed to introduce the Web 2.0 mindset and the opportunities and necessities social media present.

Using social media to address the cost equation

According to Lefebvre, while little research has been done on the use of social media and mobile technologies to explore monetary price setting for physical products, progress has been made on exploring psychological costs and benefits of social marketing products and services. "One of the exciting opportunities of mobile phones for public health," he notes, "is how to utilize this technology to overcome many psychological and social barriers (costs) people have to engaging in new behaviors, develop mobile-mediated incentives and reinforcers, and create new ways of providing social support to people who are trying to change behaviors" (Lefebvre, 2009).

One such example is SEXINFO, a text-message based sexual health information and referral service created by Internet Sexuality Information Services, Inc, and the San Francisco Department of Public Health. By sending a text message to the service, San Francisco teens and young adults can choose to confidentially receive information about a variety of questions or concerns, including pregnancy, condoms, sexually transmitted diseases, HIV/AIDS, and testing, among other topics. The service also refers texters to nearby testing sites. Early focus groups

revealed that targeted youth viewed the service as private and valuable, if they could voluntarily "opt in". During its first 25 weeks, the service received more than 4500 inquiries, 2500 of which led to requests for additional information or referrals (Levine, 2011).

In another sexual health promotion program, the nonprofit social marketing organization DKT International launched mid- and low-priced condom brands throughout Turkey in 2009. Formative research among 13,000 young professionals and married couples showed that 57% would use the Internet as their primary source of sexual health information. "Anonymous in nature, the Internet would allow those who were struggling with conservative norms surrounding sex and condoms to engage and learn about the issues (Purdy, 2011) The mid-priced condom brand was heavily promoted through social media channels including Facebook, Flickr.com, and Fotolog.com while the low-priced condom was not (Purdy, 2011). The campaign also targeted online advertisements through Google Adwords and placed banner ads on a gay and lesbian rights organization website. Furthermore, campaign managers developed and distributed e-newsletters and created professionally produced videos designed for viral distribution. Sales and Internet analysis indicated that the brand supported by the digital media campaign sold 1.7 million more condoms than the less-expensive brand with no social media support, and the campaign was deemed cost-effective per product sold (Purdy, 2011).

Place

Social media health applications are increasingly being developed and used to support patients, health consumers and those interested in leading healthier lives, allowing individuals to access information, advice and online communities wherever they may be. In an interview for a California Health Care Foundation report on mobile health, Scott Eising of the Mayo Clinic, an

innovator in mobile health, said, "Part of our vision for Mayo is that it's not only a destination medical center. We are going to take care of patients here and 'there,' whether at home or at work" (Sarasohn-Kahn, 2010). To that end, the Mayo Clinic and numerous health technology organizations have created applications allowing anyone with a smartphone, regardless of their physical location, to download simple programs for checking symptoms, managing chronic conditions like diabetes, comparing food choices, tracking exercise regimens, taking scheduled medications, and connecting with others who have similar health concerns, interests and experiences (Sarasohn-Kahn, 2010).

Robinson and Robertson argue that although young men are less likely than women to visit health-related Web sites, they may be more likely to exchange information, follow health recommendations or click on links to health Web sites found within the online communities that they frequently visit, *i.e.* "where they are" (Robinson, 2010). These social, virtual places do not require users to visit a physical space in order to consume and share health and lifestyle information and may offer men "personalized knowledge reflecting shared concerns/interests" (Robinson, 2010). While their recommendations are based on research into gender theory, health promotion and young men's Internet usage, they note that more research is needed to explore these ideas.

Lefebvre notes that "one of the greatest strengths of mobile technology is to place-shift many different tasks and also to use global positioning services (GPS) to create locator applications…SMS and other mobile technologies [are being used to] shift clinical interactions from health provider and clinic offices to people's natural environment" (Lefebvre, 2009).

Social media also "allow users to try new behaviors in a virtual space that is free from "geographic and temporal boundaries" (Lefebvre, 2007). Virtual worlds have been used by program developers not only as entertainment. This fun, low-risk trial of new behaviors has the potential to increase positive views toward the behavior and increase self-efficacy.

One such virtual reality world is *Second Life*, by Linden Labs. *Second Life* is an online virtual world in which "residents" create their own avatars and interact with others in a three-dimensional environment. In 2009, Beard, Wilson, Morra and Keelan conducted a survey of the health-related activities conducted on the virtual world *Second Life* (Beard *et al*, 2009). Of the 68 sites identified, 50% (34) focused on patient education or awareness of health issues. These education and awareness sites offered activities including health promotion messages in interactive information kiosks; poster and bulletin boards; health videos; slide shows; presentations; health website links; Web access points for databases portals, search engines and townhall-style meetings; games; behavioral simulations; virtual labs and classrooms and other experiences.

The second-most common health-related site (14) was illness-specific support sites, which offer one-on-one discussions with trained physicians, therapists, nurses, librarians and other health care professionals, as well as peer support groups (ibid). Other sites included health care professional training sites (11), sites designed to market (6) health services, organizations, fundraising initiatives and health care initiatives, and research sites (3). The authors found that Second Life is being used to "educate users about important public health issues, train health care providers, market and promote health services, allow individuals to seek out individual or group support for diverse health issues and, finally, to conduct research." They concluded that "behaviors from virtual worlds can translate to the real world…[and that *Second Life*] users are

engaged in a range of health-related activities…which are potentially impacting real-life behaviors" (Beard et al, 2009).

The Centers for Disease Control and Prevention has been a leader in the use of social media to advance the public's health, describing the technologies as effective tools that reach people "when, where, and how they want to receive health messages" (Centers for Disease Control and Prevention). From 2006-2008, the CDC collaborated with *Whyville*, a virtual world targeting children ages 8-15, to promote the importance of flu vaccinations (Centers for Disease Control and Prevention). According to the CDC website, the 2006-2007 and 2007-2008 six-week campaigns reached millions of children with their educational activities and games, which encouraged kids to vaccinate their virtual selves (avatars) and empowered them to share their knowledge about flu vaccinations with their family members, including their grandparents. During the first year's campaign, nearly 20,000 unique "Whyvillians" were vaccinated. During the campaign's second year, not only were 40,000 unique "Whyvillians" vaccinated, but participants also sent 7,500 vaccination invitations to their grandparents, with 1,800 grandparents logging on to the site to learn more (Centers for Disease Control and Prevention).

Figure 1. Centers for Disease Control and Prevention virtual vaccination experience within the virtual world Whyville (Centers for Disease Control and Prevention).

Promotion

While traditional media channels such as public service announcements, billboards, posters, earned media (*i.e.* public relations), and print advertisements have long been used to promote social marketing campaigns, social media offer audience members the opportunity to actively participate in the development and dissemination of advertisements and other promotional materials (Dahl, 2010).

According to Thackeray and colleagues, the extent to which social media will impact the promotion of social marketing products and services is yet to be seen; however, they note that it may provide several advantages. First, social media has been shown to increase buy-in, loyalty and the subsequent "purchase" of marketed products or services (McKenzie, Neiger & Thackeray, 2009). Second, it may increase word-of-mouth among members of a social group.

Third, customer-developed promotional elements, such as photos or videos, may be more cost-effective to produce than those created by professional agencies. Finally, promotional strategies developed by the "customer" base may resonate with the priority audience, as they are "'created for the people by the people' or 'by the users for the users'" (Thackeray, 2008).

Another example is the Facebook page *Get Yourself Tested* (GYT), part of a sexually transmitted disease prevention campaign sponsored by MTV, the Kaiser Family Foundation, CDC, Planned Parenthood Federation of America and other partners. Founded in 2009, the campaign goal is to "reduce the spread of STDs among young people through information, open communication with partners, health care providers, and parents, and testing and treatment as needed" (GYT, 2011). The campaign's Facebook page includes messages about the importance of getting tested for sexually transmitted infections, celebrity videos about testing, promotional contests, photos, and an online locator service for finding free and low-cost testing sites (Levine, 2011). As of June 2011, the page had more than 14,000 "fans" (GYT, 2011).

Pempek and Calvert studied how online computer games, called advergames, could be used not only to market products, but also to market health food choices (Pempek, 2009). In their research with low-income African American children, they developed a Pac Man-like online computer game in which players were either rewarded or penalized for "eating" nutritious or less nutritious foods. After playing the game, participants were offered the choice of healthy or less healthy snacks and beverages. The researchers found that children selected and ate whatever snacks were being marketed by the advergame, whether they were nutritious or not. "If the game promoted less healthy foods and beverages, snacks of poor nutritional value were chosen and eaten. By contrast, if the game promoted healthier foods and beverages, snacks of better nutritional quality were chosen and eaten". They found that "public concerns about online

advergames that market less healthy foods and beverages to children are justified" and that advergames could be used to effectively promote healthy snacks among children (Pempek, 2009).

Media advocacy through social media: upstream social marketing

Social marketing involves not only "downstream" individual behavior changes among a target population, but also "upstream" changes in health policy, legislation and infrastructure. These "upstream" changes can create the conditions in which communities and populations can adopt healthy behaviors.

According to Dahl, online social media tools are useful components of social marketing programs targeting individual behavior change if target audiences are motivated to engage with the media and alter their behaviors. However, if they are unmotivated around these target behaviors, upstream social marketing may be more effective (Dahl, 2010). Upstream social marketing is used to change policies, laws, regulations, and physical environments in order to facilitate individual behavior change (Niblett, 2005). Advocacy often plays a central role in bringing the voice of communities to the health policy table and in driving change.

Maibach and colleagues described the use of civic journalism and photovoice as advocacy and civic engagement tools to highlight public health issues that disproportionately affect a given community. By using grassroots journalism to involve community members in civic life, and photography to document a public health problem of relevance to them, community members can "engage policy makers and other community leaders in the issue of concern so that they will effect the changes as recommended by members of the afflicted community" (Maibach, 2007). While these concepts originated in a Web 1.0 world of unidirectional mass media (Wallack, 2000), Web 2.0 technologies have opened up numerous

opportunities for activist bloggers and photographers to document, share, discuss and advocate for action and change.

In an article entitled, "Guerilla advocacy: Using aggressive marketing techniques for health policy change," Galer-Unti listed seven principles of guerilla marketing that can be applied to health advocacy (Galer-Unti, 2009). The table below summarizes Galer-Unti's principles, and suggests ways in which social media tools may be leveraged to support them.

	Principle	**Explanation**	**Social media implications**
1	Use sound psychological principles in your advocacy efforts	Do not overwhelm your audience with extraneous information or long-term disease consequences. Focus on key short-term benefits.	Linked support documents and Web sites should be carefully selected to support the main arguments, and not include a laundry list of all available information.
2	Investment and commitment	Use the principles of community organizing, training, and empowerment to reward and invest in volunteers. Evaluate efforts over time.	Use social networking sites and/or Twitter updates to keep volunteers informed and engaged, publicly acknowledge their work and build a sense of community. Monitor and evaluate communications activities through online analytic tools.
3	Use creativity, energy, and amazement	Bring together large crowds of people for rallies and events; incorporate creative, outlandish elements for media attention.	Utilize Twitter, social networking sites, and viral videos to bring together supporters in person and online for energizing gatherings. Use video contests to stimulate and harness group members' creativity; promote their

			contributions.
4	Build relationships	Expand networks and contact lists; galvanize new and old allies; work to align with a variety of individuals (someone in your network could have a member of the opposition in their network.) Focus on strengthening grassroots and collaborative efforts so that policy makers come to you.	Continuously connect with supporters and new contacts online with both one-to-one and one-to-many communications channels.
5	Focus	Sharpen the focus of your advocacy efforts by choosing one appropriate content area to concentrate on. Keep messages focused and simple.	Reinforce and repeat the one central theme of the advocacy effort throughout online, print and in person communications. Monitor others' communications for consistency of message.
6	Vary your methods	Develop a variety of methods for distributing the key advocacy message, as different people respond differently to various forms of written and visual communication.	Utilize emailed newsletters, personal emails, postcards, face-to-face meetings and rallies, group-generated photos and videos and more to send the same consistent message.
7	Use current technology	Stay attuned to trends in Web 2.0.	Learn about and share emerging communication trends with your core team; listen and learn from the technologies that are most engaging to your followers.

Figure 2. Galer-Unti's seven principles of guerilla marketing, their application to health advocacy (Galer-Unti, 2009) and implications for the effective use of social media tools.

While social media offer numerous opportunities to organize grassroots efforts to influence policy change, Abroms and Lefebvre (Abroms & Lefebvre, 2009) caution that social

media should be used "to facilitate in-person grassroots activities, not to substitute for them."

Program evaluation and metrics

Since the 1990s, research has been conducted into ways in which Internet content and search behavior can be tracked and mined for data relevant to public health, resulting in the field of infodemiology. Infodemiology is "the science of distribution and determinants of information in an electronic medium, specifically the Internet, or in a population, with the ultimate aim to inform public health and public policy" (Eysenbach, 2009). These technologies were first used to analyze content being published on Web sites, blogs, Twitter, and other social media sources (Eysenbach, 2011) (*e.g.* "supply-side infodemiology") (Eysenbach, 2002), but have expanded to now include health information seeking behavior (*e.g.* "demand-based infodemiology) (Eysenbach, 2006), including Internet users' searches and navigation (Eysenbach, 2011). Eysenbach argues that, among its many uses, infodemiology methods and technologies can be used for "infoveillance", or tracking the effectiveness of health marketing campaigns, including the collection of population-level behavioral measures for public health policy and practice (Eysenbach, 2009). Infoveillance can also be used by health marketers to track increases in health- or campaign-related misinformation; surges in health information demand; and the effectiveness of information dissemination. Eysenbach suggests that these tools could also be used to create an "infodemiology dashboard", which would provide relevant data for policy makers regarding areas in which health marketing campaigns are needed, and to track the number of accurate versus misleading or biased Web sites and blog postings following a health marketing campaign on controversial topics (*e.g.* childhood vaccinations).

These and related tools, including HealthMap, Outbreaks Near Me and Infovigil, are currently being used to understand and track the incidence of, and social networks relevant to, infectious disease outbreaks (Eysenbach, 2009; Garrity, 2011). The diagram below illustrates the relationships among the various components of infodemiology and its role in public health.

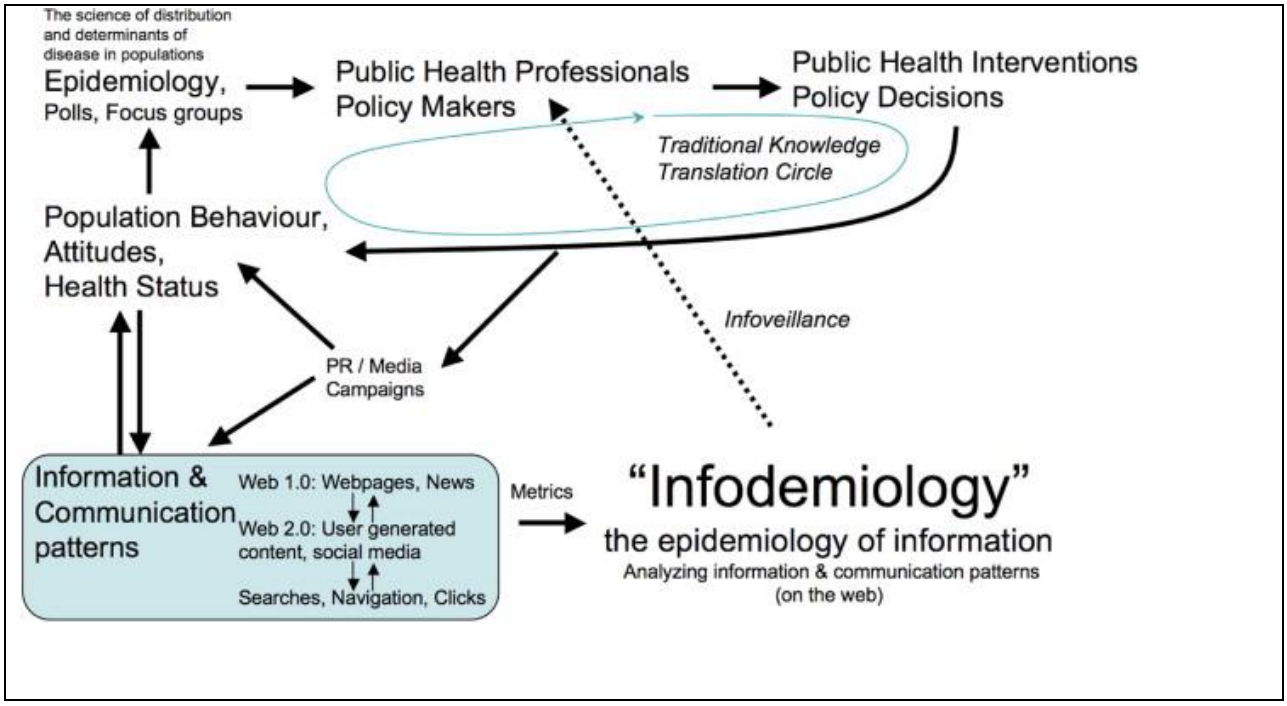


Figure 3. The role of infodemiology in public health (Eysenbach, 2011). This figure shows the interrelationship among public health, health communication and infodemiology.

Chew and Eysenbach used the Infovigil infoveillance system and Twitter to conduct a content analysis of tweets during the 2009 H1N1- influenza outbreak. The goal of the study was to track the appearance of the terms H1N1 and "swine flu" over time, analyze the content of the tweets, and validate Twitter as a real-time tool for tracking content, sentiment, and trends. The authors concluded that social media can be used to conduct infodemiology studies for public

health, and that "tweets can be used for real-time content analysis and knowledge translation researh, allowing health authorities to respond to public concerns" (Chew & Eysenbach, 2010).

Wireless mobile technologies have also shown promise as tools for tracking self-reported health behaviors and providing input into public health interventions. For example, Bernhardt and colleagues used mobile devices called Handheld Assisted Network Diaries (HANDs) to gather self-reported alcohol consumption data from college students, comparing the data with that captured in paper-and-pencil Daily Social Diaries and Timeline Followbacks. The researchers concluded that the mobile devices captured similar drinking behavior data as the other two methods, validating the technology for use in measuring daily drinking among college students. They note that further research is needed to validate the tool for broader application to alcohol assessments and interventions (Bernhardt, 2009).

Management question and issues

Despite the great potential and growing evidence base for using social media in social marketing programs, Thackeray and colleagues recommend that program managers gather data and ask themselves numerous questions before proceeding. (Thackeray, R. 2008) Examples of the issues they suggest program managers consider are listed below.

Priority population preferences

- Can the needs of the priority population best be met by using Web 2.0 social media?
- What are the media habits or behaviors of those in the priority population? Can the priority population be segmented by their Web 2.0 social media behavior (*e.g.* bloggers, podcast users)?

- For whom is Web 2.0 social media best suited? Are those individuals a part of your priority population?
- Do those in the priority population have access to the Web 2.0 social media?
- Do those in the priority population feel comfortable using the Web 2.0 social media? Do they have the knowledge and skills to use it?
- Are there social costs (*e.g.*, lack of social support) for using or not using the social media?
- Is the social media accepted in the environment of the customers?

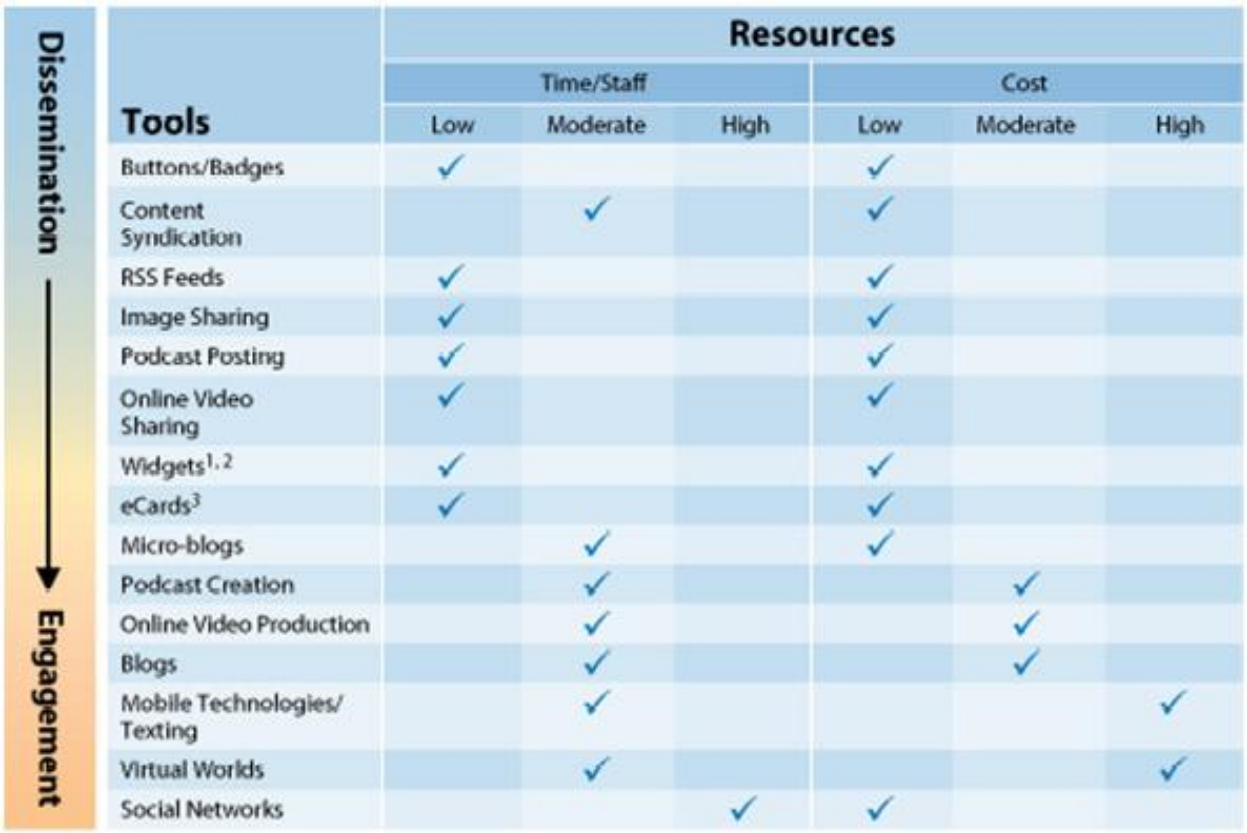
Resources

- What are the costs associated with the media versus the benefits?
- Can providers afford the financial costs (*e.g.*, expertise to create, ability to distribute) associated with Web 2.0 social media?
- How difficult will it be to implement?

Goals and objectives

- Does it enhance the intervention strategy or is it just the thing to do or make the strategy more difficult to implement?
- Is it the right time to introduce Web 2.0 social media to the priority population?
- Do the Web 2.0 social media help to meet the needs of the priority population?
- Can the Web 2.0 social media help to reduce the costs/barriers for the customers?
- Is it possible to evaluate the effect of the Web 2.0 social media?

The Centers for Disease Control and Prevention (CDC) suggests that public health agencies that are interested in incorporating social media into their programs start with low-cost, low-involvement dissemination tools and progress over time to tools requiring greater staff time, resources, and expertise, but that result in greater audience engagement (Centers for Disease Control and Prevention). The CDC also recommends that agencies engaging in the use of social media establishing a governing structure, including boards and councils, as well as policies, guidelines, standards and recommendations that manage the effective and acceptable use of social media within their agencies and programs (Centers for Disease Control and Prevention). A chart detailing the tools, resource intensity and level of audience engagement is presented below.



Dissemination → Engagement	Resources					
	Time/Staff			Cost		
Tools	Low	Moderate	High	Low	Moderate	High
Buttons/Badges	✓			✓		
Content Syndication		✓		✓		
RSS Feeds	✓			✓		
Image Sharing	✓			✓		
Podcast Posting	✓			✓		
Online Video Sharing	✓			✓		
Widgets[1, 2]	✓			✓		
eCards[3]	✓			✓		
Micro-blogs		✓		✓		
Podcast Creation		✓			✓	
Online Video Production		✓			✓	
Blogs		✓			✓	
Mobile Technologies/ Texting		✓				✓
Virtual Worlds		✓				✓
Social Networks			✓	✓		

[1] Indicates the posting of a widget, not production.
[2] Although the majority of widgets feature embedded content, some may contain an interactive component such as a quiz or a calculator.
[3] Indicates the sending of an eCard, not production.

Figure 4. Organizational resources required to develop and employ social media tools in health communication programs and associated levels of audience engagement (Centers for Disease Control and Prevention).

Recommendations

Social media tools and technologies are quickly evolving and being used in new and previously unexpected ways by both individuals and organizations throughout the public health system. Modern health organizations have much to gain – and little to lose – by identifying and experimenting with technologies that 1) bring them closer to their target populations, 2) involve them in relevant online "conversations" and 3) facilitate dialog and support at multiple levels.

When taking these first steps into unfamiliar communications territory, social marketers should begin with tools and technologies that further program goals, but which require minimal resources and staff engagement. Once institutional knowledge and support grow, and sufficient staff and resources are allocated, social media tools that facilitate further dialogue with and insights from audience members may be incorporated and economic return-on-investment assessed.

To facilitate the introduction and effective use of these new technologies, public health organizations should also develop policies, guidelines, standards and best practices that govern their usage; establish boards or advisory councils responsible for ensuring high standards; and put in place systems to monitor the social media environment around their issues.

While social media tools may supplement and extend other forms of communication, they should never replace the face-to-face contact needed for building meaningful community partnerships. Stakeholder and community meetings may even be useful venues for launching and promoting social media initiatives (*i.e.* video contests), gathering feedback on effective and engaging uses (which may then continue in an online forum), and showcasing community members' contributions.

In order to ensure the strategic and appropriate usage of social media technologies within their programs, health agencies should increase their capabilities through in-house experiential learning, training, recruitment, conferences and other forms of professional development. Functional areas that might benefit from training in this area include community outreach, program management, communications and marketing functions, as well as staff epidemiologists looking for new ways to monitor community health.

Finally, while social media tools allow social marketers to connect with target audiences in new ways (and to connect them with one another), they also allow health agencies a unique window into the innovative work done by some of their "competitors", such as the tobacco industry and producers of unhealthy consumer goods. By strategically monitoring competitors' communications and marketing strategies, including their use of social media tools, social marketers have the opportunity to learn from, counter, publically comment on, and perhaps even replicate their most effective engagement techniques.

Conclusion

Web 2.0 technologies not only facilitate new ways of promoting healthful behaviors. They also allow program managers to interact in real time and build ongoing relationships with geographically dispersed target audiences throughout the development, implementation and evaluation of social marketing programs. With the power to self-organize, influence program decisions, design campaign components, promote causes and rally their networks, community members are evolving into active program developers with valuable insights into the programs' content, brand, promotion and more.

The increasing popularity and use of mobile and smart phones offer new opportunities and challenges for program managers as they strive to raise awareness, engage, empower and inspire behavior change among target audiences. Early research has demonstrated the utility of these devices for increasing access to credible health information, behavior change tools, and medical service referrals irrespective of time or place. They have also been shown to reduce barriers to behavior change, such as time, location, inconvenience and embarrassment, and to increase incentives, such as individual behavioral feedback and social support.

Social media technologies also show great promise for gathering the real-time health status and behavioral data needed to inform the development and improvement of social marketing programs. From monitoring influenza-related "tweets" to gathering the number of drinks consumed on an evening out, social media tools are increasingly being leveraged for the tracking and measurement of key program indicators.

The studies discussed in this paper describe the potential, feasibility, and early promise of incorporating social media into social marketing programs. While additional research is needed to determine their impact on health outcomes, Web 2.0 technologies are beginning to change the way we conceptualize and implement the "Four Ps" of social marketing.

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